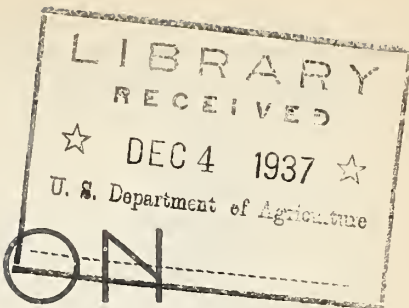


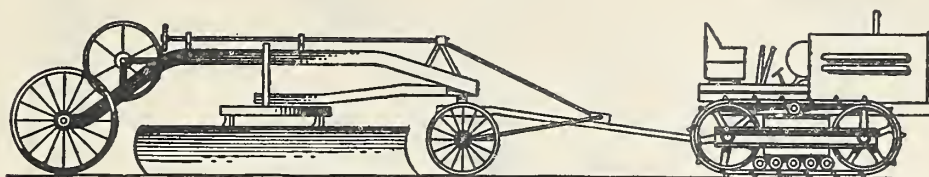
Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

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CONSTRUCTION



HINTS

UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE
WASHINGTON, D. C.

Vol. 3

November 27, 1937

No. 18

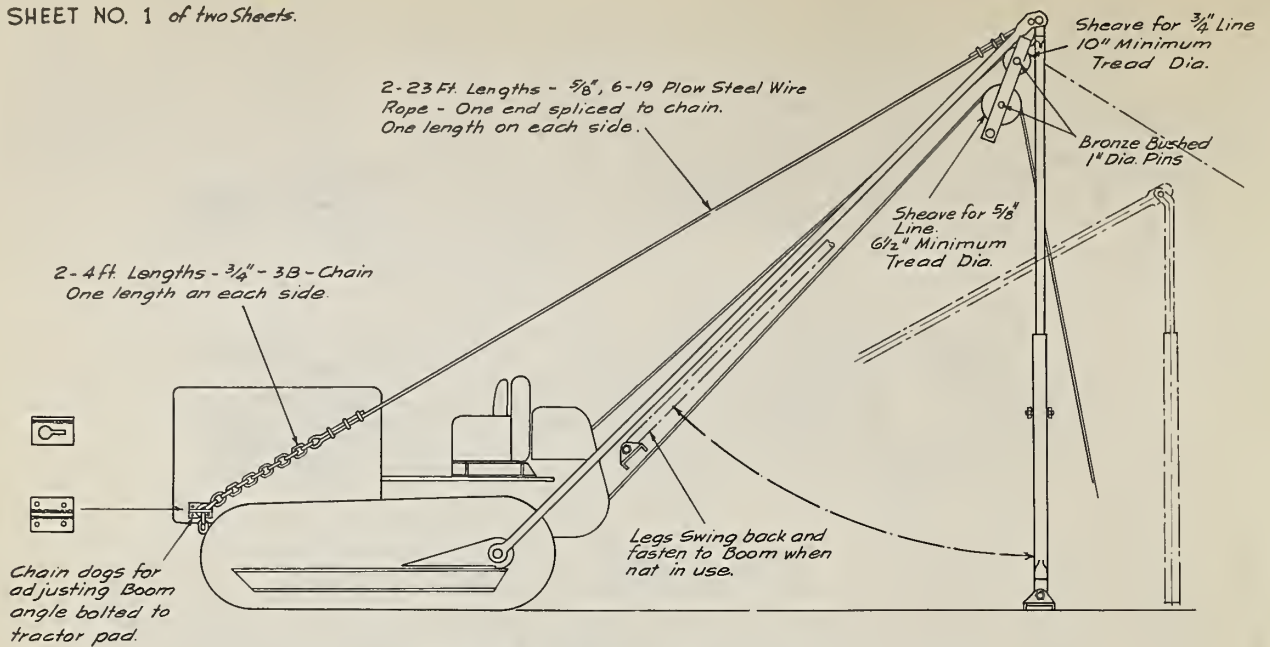
Tractor Boom

From time to time there has been a demand for a standardized plan for some type of stiff leg non-swinging boom for mounting on tractors. Several have been built in the past by some of the forests and proved to be very useful for roadside cleanup, dragline work and light logging.

This is a general design for a tractor mounted boom. The dimensions and center distances shown on the drawing are for mounting on a "60" Caterpillar tractor, but this type of boom can be made to fit any size tractor if necessary. The drawing is intended to illustrate a general, approved plan and the points at which connections and mountings should be made. This plan shows the boom combined with a vertical stiff leg which bears on the ground and is otherwise fairleaded and rigged up for use as a dragline for logging operations.

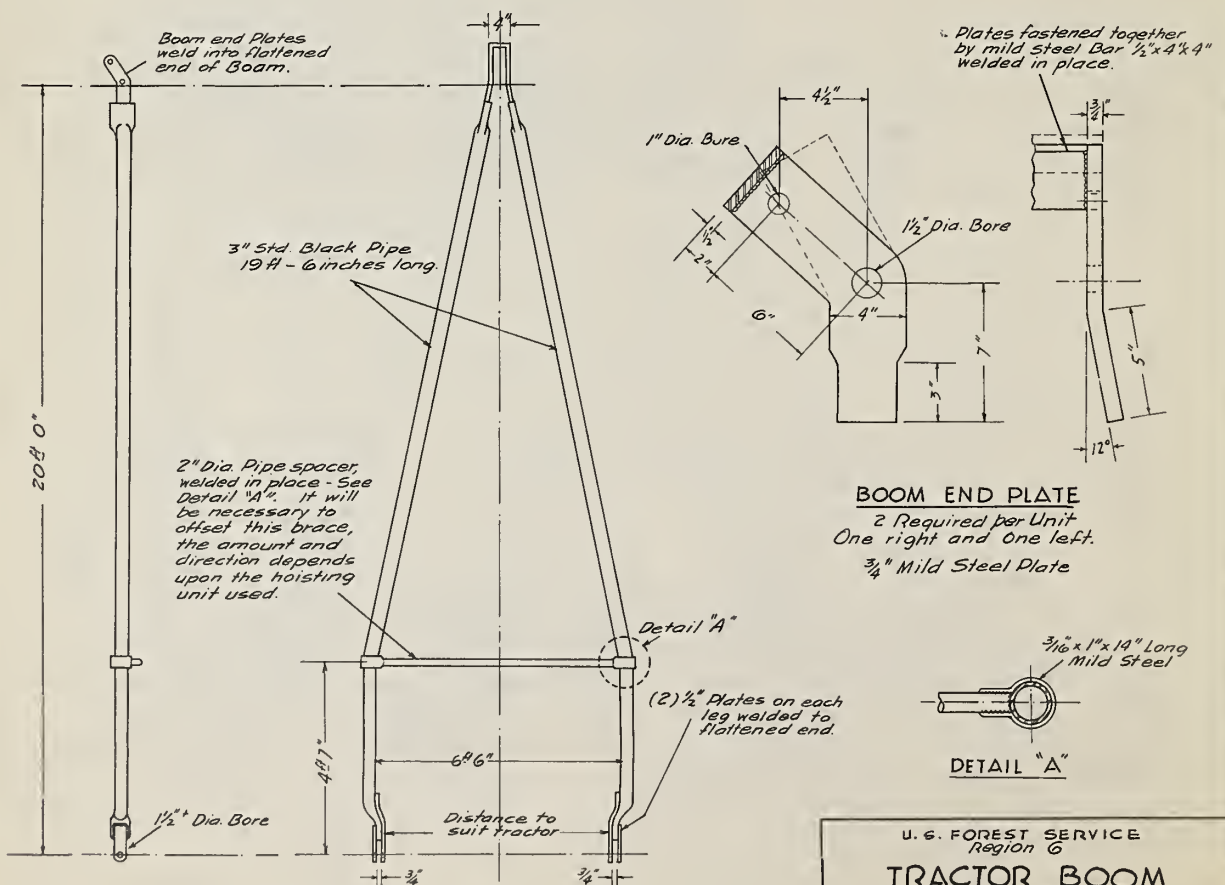
Where it is intended to use a boom for lifting light loads up to 2,500 pounds, the boom can be made shorter than is shown. For these lighter loads or for intermittent use it is not necessary to install or use the stiff leg, but wherever a boom may be used on continuous heavy duty and more or less stationary work, it is advisable, and in fact necessary, to use a stiff leg to avoid delivering injurious stresses to the tractor.

(over)



SIDE ELEVATION - TRACTOR CRANE

The above arrangement is for use with double Drum Hoist - Where single drum hoist is used only one fairlead Sheave is required. The length of Boom shown is ideal for drag line operation, but for lighter duties the length of the boom may be shortened as desired and telescoping Stiff Leg (Boom end Support) eliminated.



BOOM ASSEMBLY

One required per unit - Fabricated Mild Steel.

BOOM END PLATE

2 Required per Unit
One right and One left.

3/4" Mild Steel Plate

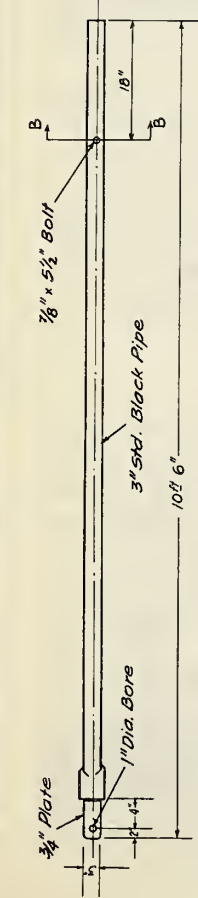
3/16" x 1" x 14" Long
Mild Steel

DETAIL "A"

U. S. FOREST SERVICE
Region 6

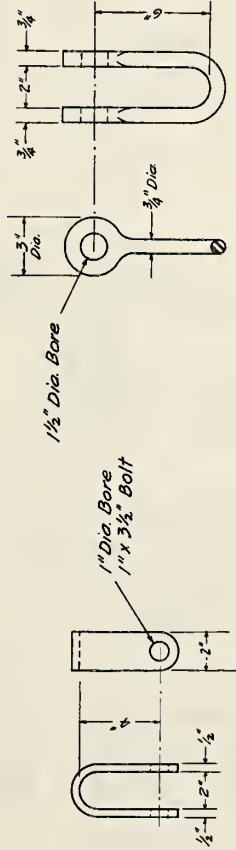
TRACTOR BOOM STIFF LEG TYPE

DESIGN BY - W.W.G. & R.E.N. APPROVED - T.P. FLYNN
DRAWN BY - W.W.G. CHECKED BY - R.E.N.
DATE - 9-11-37 Retraced in W.O. by R.A.W.



UPPER REACH - BOOM END SUPPORT

Two required per unit.

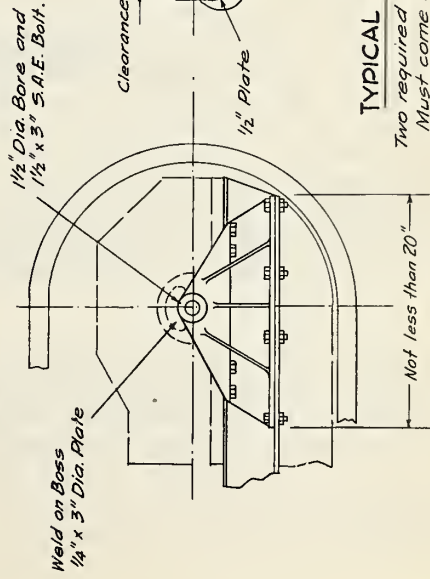


SHEAVE SUPPORT STRAP

One required per unit.
1/2" x 2" Mild Steel

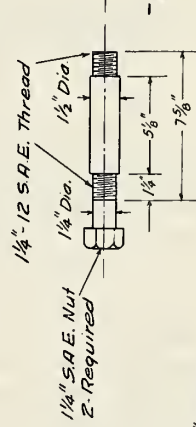
UPPER GUY WIRE ANCHOR

One required per unit
Mild Steel



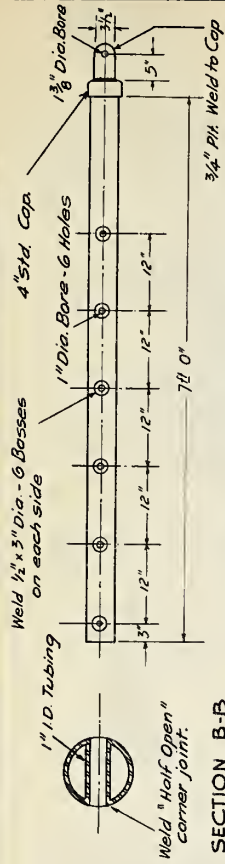
TYPICAL BOOM ANCHOR

Two required - One left and one right.
Must come on $\frac{1}{4}$ " of dead axle
or point about which track
channels oscillate.



- BOOM END PIN

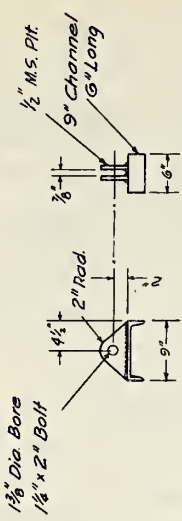
One required per unit.
1 1/2" Dia Cold rolled steel.



SECTION B-B

LOWER REACH - BOOM END SUPPORT

Two Required per unit.



BASE - BOOM END SUPPORT

Two required per unit.

U.S. FOREST SERVICE
Region 6

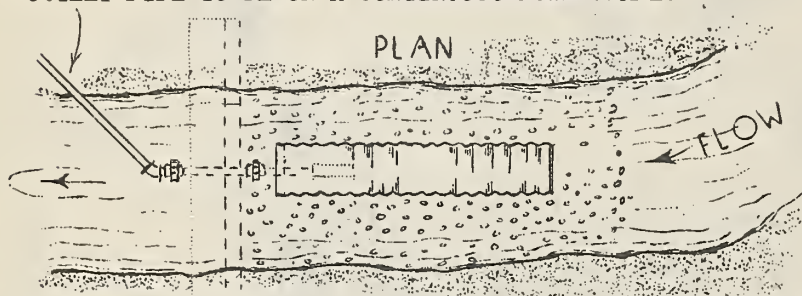
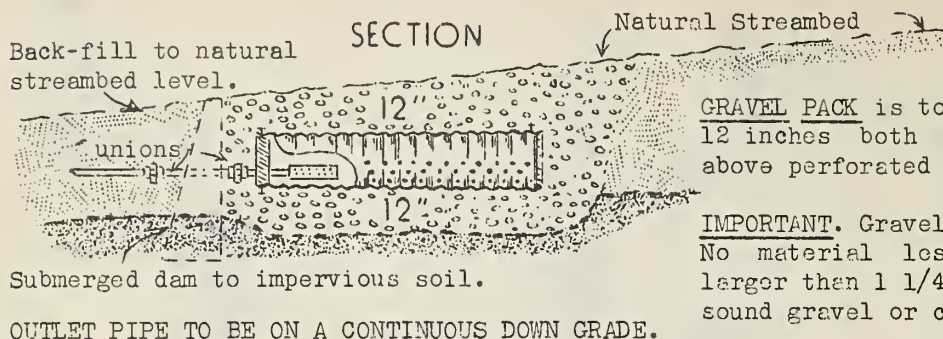
TRACTOR BOOM

STIFF LEG TYPE

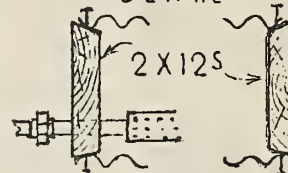
DESIGN BY - W.W.G.-REN. APPROVED - TPA/VMM
DRAWN BY - W.W.G. CHECKED BY - R.E.N.
DATE - 9-21-37 Retrace in W.O. by R.A.W.

STREAM DIVERSIONS FOR RUNNING STREAMS & SPRINGS IN NORMALLY DRY STREAM CHANNELS.

E-WATER
①
STREAM
DIVERSIONS
LOS PADRES



CULVERT END PLUGS
DETAIL



PERFORATED CORRUGATED CULVERT

This type of diversion is to be used on a stream, subject to silt carrying floods or at springs located in normally dry stream channels. Proper gravel pack is important. The entire installation must be made below the natural stream bed, the dam to be submerged and constructed of either concrete or redwood. The dam must extend out on sides and down on bottom to impervious material.

Perforated Culverts. Perforate the lower half of a 12" corrugated culvert pipe, 20 holes per square foot, holes to be 1/8" in diameter, length of culvert to vary according to the needs at the location. Plug both ends with redwood plugs, nailing it lightly in place to facilitate removal. Place outlet pipe through lower end plug. Screen outlet pipe.

If a stream has a good gradient, silt should pass over, but at times silt may settle into gravel pack and it may be necessary to remove a layer of gravel occasionally and replace. Reference - "Small Water Development Handbook", Page 30.

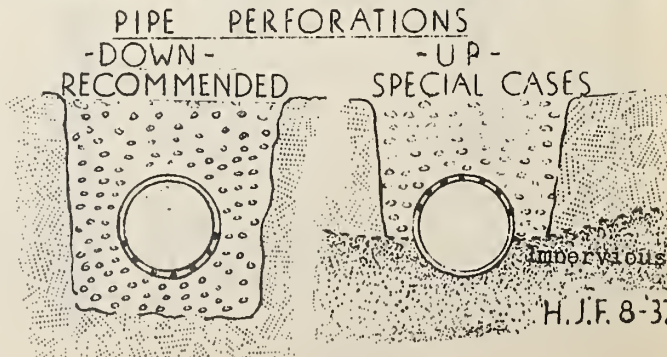
* * * * *

INFILTRATION OPENINGS - UP OR DOWN

From Highway Magazine - August 1937, - by J. E. Cotton

"The two conditions are shown (in sketch) and it is recommended that the perforations should be down for the usual case. Water entering the pervious back-fill material, either at the top or from the side, immediately drops to the bottom of the trench and enters the lower perforations when the water table is built up to that level. Therefore, with the perforations down, a lower water table is maintained in the trench or in the surrounding soil.

The most important reason for placing the perforations down is to prevent the entrance of solids (silt, sand and small particles of gravel). It is a well-recognized fact that silting and plugging up is one of the principal causes of failure.."



DISCHARGE & OUTLET SCREENS (STRAINER)

E-WATER
②
SCREENS
LOS PADRES

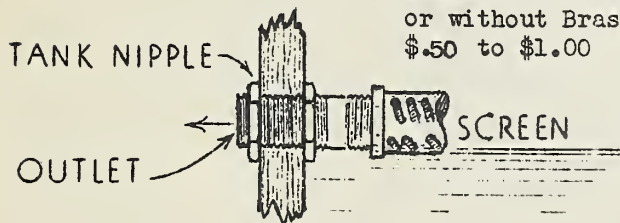
Figure 659



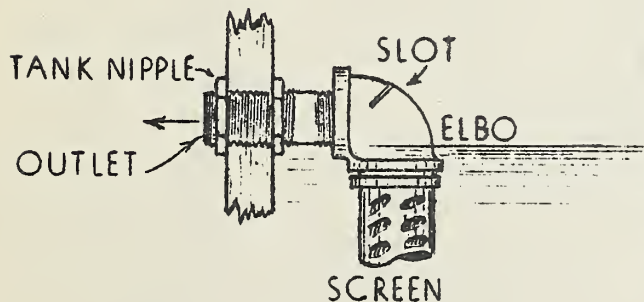
Figure 660

In the past, several attempts have been made to fabricate screens for discharges from Water Tanks, Spring Boxes, Perforated Culverts, etc. Most of the screens have been unsuccessful, chiefly from the lack of proper materials and also from the difficulty of making up. In the future, the Commerical Type of Screen Strainer will be used, illustrated herewith, and available in male or female standard pipe threads.

DISCRIPTION OF STRAINER--Equal to Goulds figure 659 for female fittings and figure 660 for male fittings. Those are illustrated on page 51 of Goulds Pumps Dealers Catalog of 1937. They are available in sizes of 1" to 2½" in either black or Galv. and with or without Brass gauze screen. The price ranges from \$.50 to \$1.00



SCREEN--In general the above screen will be screwed direct on tank nipple and set horizontal to avoid air locks in the discharge line as illustrated.

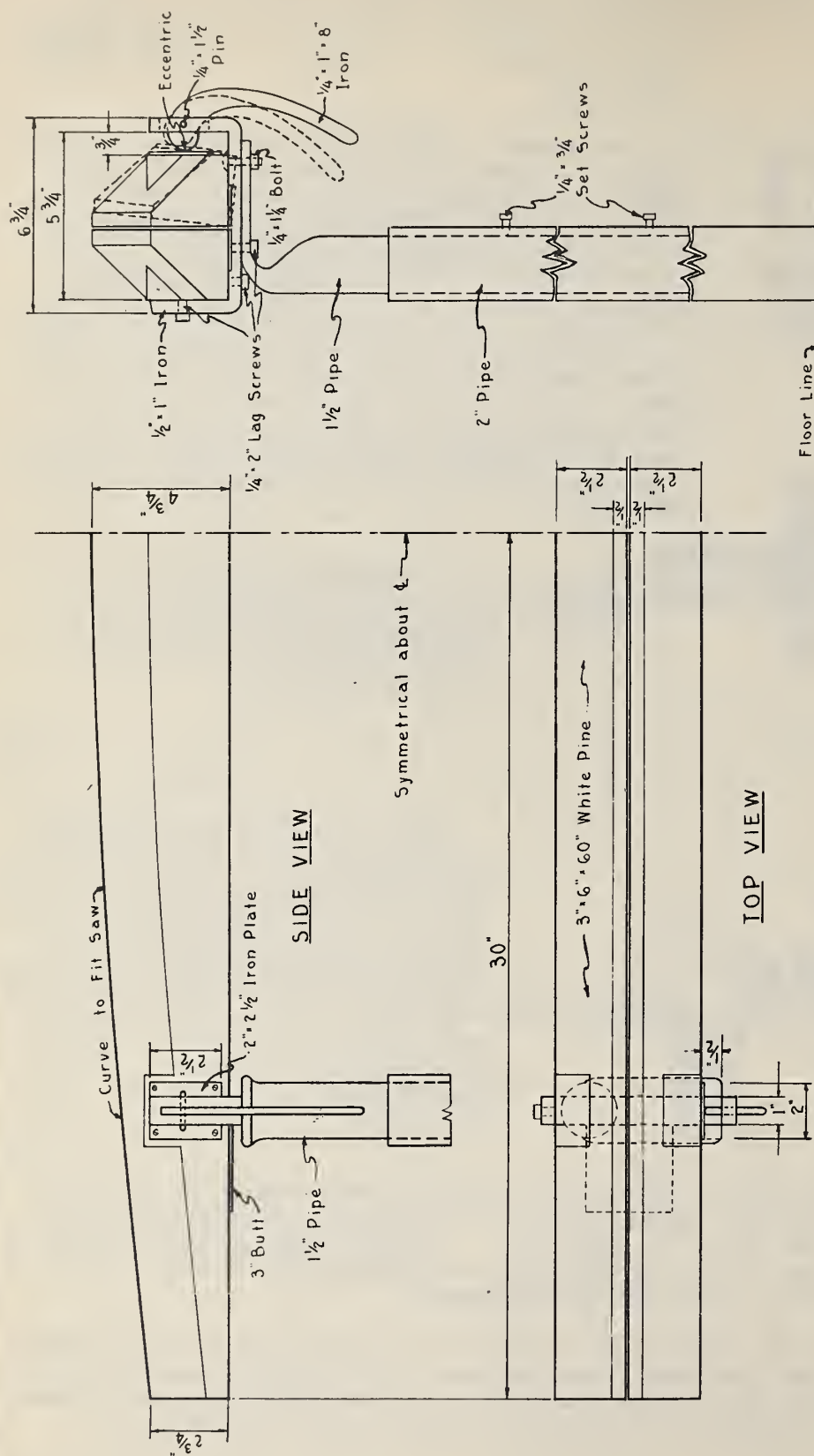


When placing screens on discharge from spring boxes or settling basins, it is sometimes desirable to have the screen placed on an elbow turned down. This will keep floating materials from reaching the screen as the water level will remain at the elevation of the discharge pipe. Heavy materials will sink to the bottom of the box and keep the screen clear. Slot elbow as shown to avoid an air lock in the line.

TANK NIPPLES--Various make-shift devices have been used in the past for running pipes thru tanks, spring boxes, etc. making it necessary in some cases to caulk around the pipes. In the futuro, all pipe openings thru sides of such structures will be made by using standard TANK NIPPLES for this purpose. These are available from any Pipe Supply Company.

INLETS-----For inlet pipes, it will not be necessary to use these nipples as inlet pipes many times enter above the water level in the tank. In these cases simply drill a hole thru the tank of proper size and insert pipe. Leave threads on end of inlet pipe so Pumper can connect on and blow out line.

H.J.F. 8-37



END VIEW

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

REGION NINE H. COLEMAN REGIONAL ENGINEER

SAW FILING RACK

DESIGNED SUPERIOR DRAWN R.W.H. TRACED E.R.R.
SCALE 3"=1'-0" CHECKED N.D.O.
APPROVED H.C. REV. ENG. DATE 9-22-37

BILL OF MATERIAL

- 2 pcs. 3" x 6" x 60" White Pine (cut as shown)
- 2 pcs. 1 1/2" x 4'-0" gal. iron pipe
- 2 pcs. 2" x 4'-0" gal. iron pipe
- 1 pr. 3" butts with wood screws
- 2 pcs. 2" x 2 1/2" iron plates
- 8 ea. 1/2" flat head wood screws
- 2 pcs. 1/2" x 1 1/4" iron (shaped and drilled as shown)
- 2 pcs. 1/4" x 1" x 8" iron (shaped as shown)
- 2 ea. 1/4" x 1 1/2" pins
- 6 ea. 1/4" x 2" lag screws
- 4 ea. 1/8" x 3/4" set screws
- 2 ea. 1/4" x 1/4" carriage bolts